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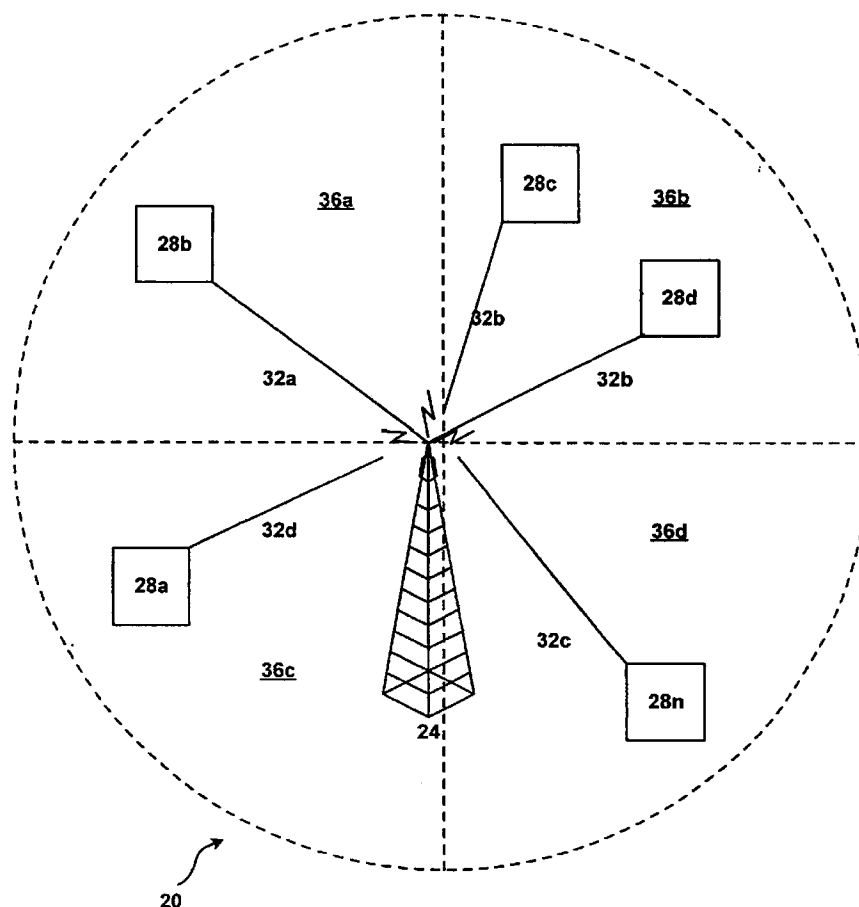
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2,392,574 8 July 2002 (08.07.2002) CA
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[Continued on next page]

(54) Title: SYSTEM, APPARATUS AND METHOD FOR UPLINK RESOURCE ALLOCATION



(57) Abstract: A system, method and apparatus for managing uplink radio resources. The RRAM employs selective rate reduction to ensure resources for subscriber stations depending on individual QoS requirements. In response to a request for a new DDCH, the RRAM can drop a subscriber station at a low data rate and no media reservations. In response to traffic measurement reports from the subscriber stations, the RRAM attempts to increase or decrease the data rate of a subscriber station. When there are insufficient uplink resources, RRAM tries to lower the rate of a higher rate subscriber station. Searching for subscriber stations to lower, RRAM starts at the highest rate and continues to search lower data rates until a suitable candidate is found. RRAM also reserves resources for subscriber stations that will not be reallocated to other subscriber stations.

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 7 H04Q7/38

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HYOUNG-GOO JEON ET AL: "A channel assignment scheme for reducing call blocking rate in a DS-CDMA cellular system" 1997 IEEE 6TH. INTERNATIONAL CONFERENCE ON UNIVERSAL PERSONAL COMMUNICATIONS RECORD. SAN DIEGO, 12 - 16. OCT. 1997, IEEE INTERNATIONAL CONFERENCE ON UNIVERSAL PERSONAL COMMUNICATIONS, NEW YORK, IEEE, US, vol. 2 CONF. 6, 12 October 1997 (1997-10-12), pages 637-641, XP010248786 ISBN: 0-7803-3777-8	19,28, 32-36, 38,39
Y	the whole document	1-5
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.**\* Special categories of cited documents :**

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

13 November 2003

Date of mailing of the international search report

02. 03. 2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 393 030 B1 (KIM KI SEON ET AL) 21 May 2002 (2002-05-21) column 1, lines 6-10 column 1, line 65 - column 2, line 4 column 6, line 52 - column 7, line 10	32
Y	claims 1,2	1-5
X	US 6 069 882 A (ENZMANN MARK ET AL) 30 May 2000 (2000-05-30)  column 1, line 35 - column 2, line 45 claim 1	19,28, 32-36, 38,39

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA 03/00999

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5, 19, 28, 32-26, 38, 39

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5,19,28,32-36,38,39

Managing uplink resources. Uplink channel and required data rate are allocated to a new subscriber. If there is not enough resources to provide the required data rate, the data rate used by another subscriber is reduced if it's possible. If there is not available channel to be assigned to the new requesting subscriber, the channel used by another subscriber is released.

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2. claims: 6-13,20-27,29-31,37

Providing new requested data rate to subscribers which are already using a current data rate. If there is not enough resources to provide the new requested data rate, the data rate used by another subscriber is reduced.

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3. claims: 14-18,40

Managing the uplink load in a network. If the uplink load is above a certain threshold, the data rate used by a certain subscriber is reduced to a minimum data rate. If there is no subscriber whose data rate is above a minimum data rate, a subscriber is selected and its data rate is reduced to 0.

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Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6393030	B1	21-05-2002	KR	243343 B1	01-02-2000
US 6069882	A	30-05-2000	AU	8665098 A	22-02-1999
			EP	1000519 A1	17-05-2000
			WO	9907176 A1	11-02-1999